



MISE
Maritime Information Sharing Environment

NIEM-Maritime Exchange Model Summary

Indicators and Notifications (IAN)

Version 1.0 January 2015

ABOUT THIS DOCUMENT

Information sharing is about implementing services to move and manage the information required to execute our missions. The implementation of an information exchange service requires a valid common exchange model *and* a defined process for requesting and providing the information.

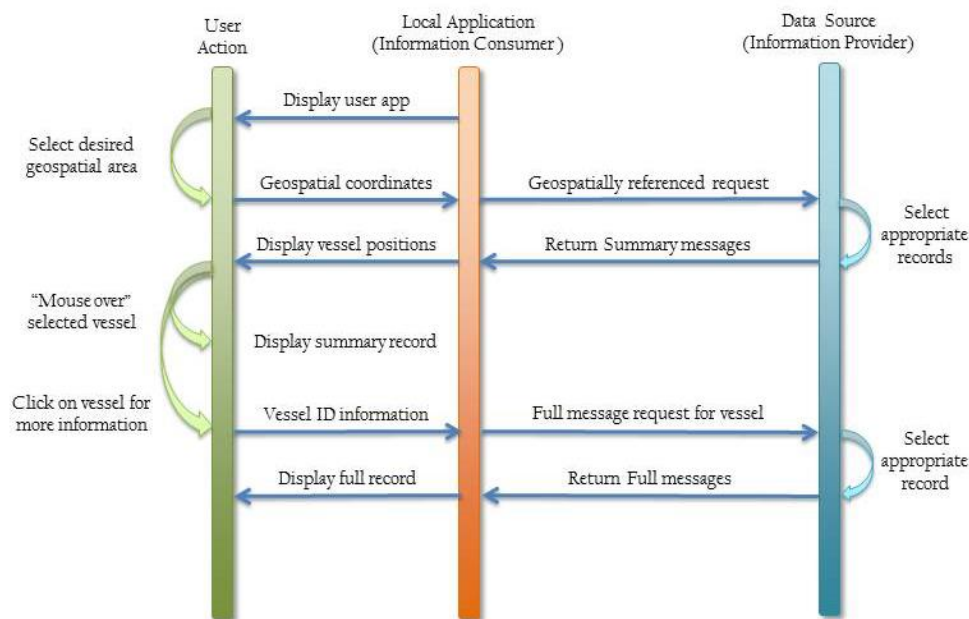
The Exchange Model Summary document provides information about both the exchange model *and* the exchange process used within the Maritime Information Sharing Environment (MISE). Contained in this document are the artifacts used to develop and document the exchange model, an example sequence of user and system actions that are the sharing process, and descriptions of the associated data exchange elements.

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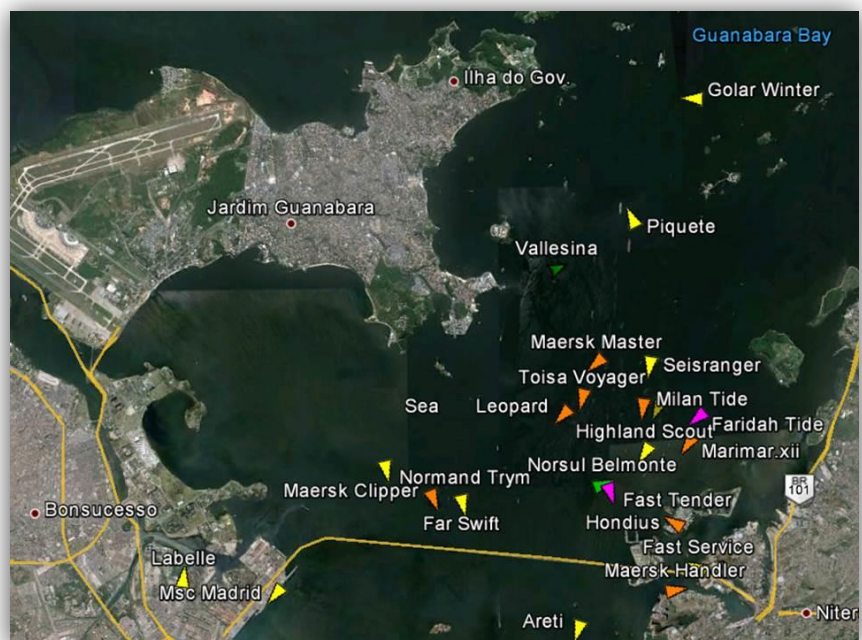
INFORMATION EXCHANGE SEQUENCE

An information sharing process can be as simple as a direct, single service that requires no interaction and does not change. However, frequently the exchange process includes user interaction. An understanding of that interaction and the associated data for each step is required before the exchange service can be established. This sequence diagram is an example of a process that could be used.

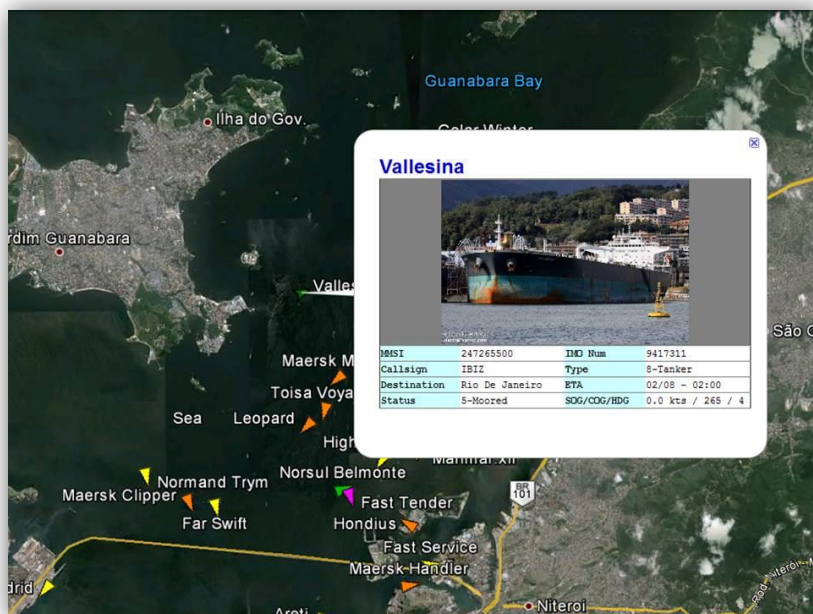


In this example, a user, using a local application, draws a box around a desired area on a geospatial display. The geospatially referenced request is sent from the information consumer to the information provider using an agreed upon request format. The returned message is a summary message for each of the vessels in the geospatial box.

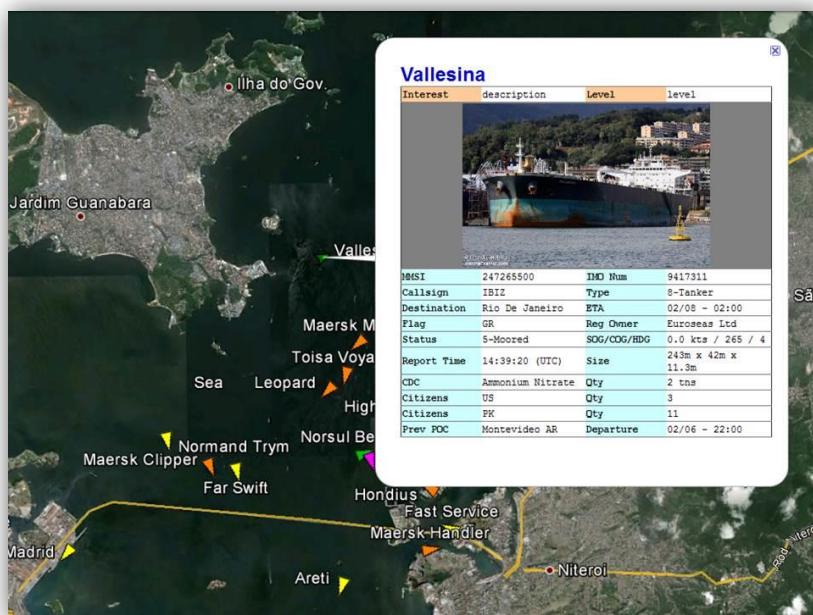
The returned information is displayed on the users application display.



If the user mouses over on a specific vessel, a “baseball card” of the summary information is displayed.



If the user clicks on a vessel, the vessel identification information is sent from the information consumer, via a previously defined request message format, to the information provider. The information service returns a full message for the vessel identified. The returned data set is received and displayed on the users application display.



This sequence depicts a possible process; many others could be defined. The important point is that a process is defined and agreed upon *before* the service is implemented.

INFORMATION EXCHANGE PACKAGE DOCUMENTATION (IEPD)

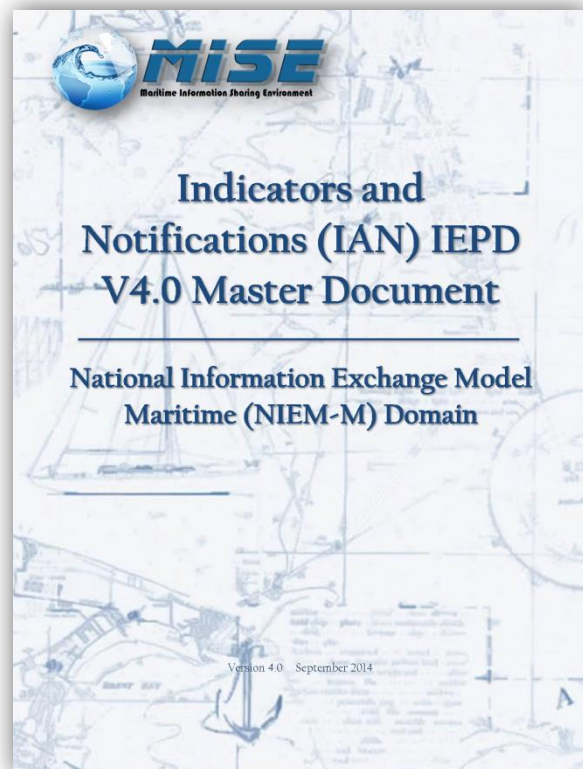
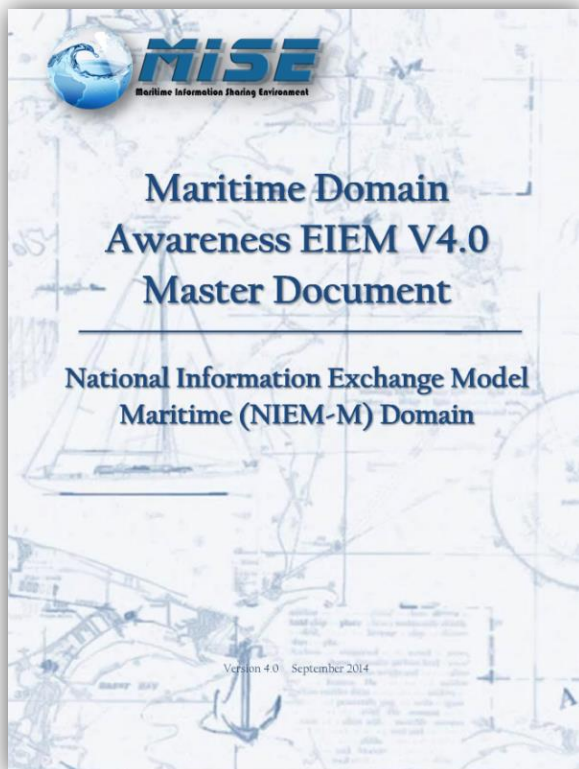
NIEM—the National Information Exchange Model—is a community-driven, standards-based approach to exchanging information and is used by the MISE to define maritime exchange models. NIEM is organized by communities, or Domains. The NIEM Maritime Domain (NIEM-M) is sponsored by an inter-agency Maritime Domain Awareness (MDA) Executive Steering Committee (MDA ESC).

Within NIEM, there are several documents used to describe or define exchange models. One of those documents is the Information Exchange Package Documentation (IEPD).

IEPDs are a cornerstone document for MISE information exchanges. Each IEPD defines a specific exchange model or message. A unique IEPD called as Enterprise Information Exchange Model (EIEM) defines Basic Information Exchange Components (BIEC). BIECs are blocks of information that are common to multiple IEPDs.

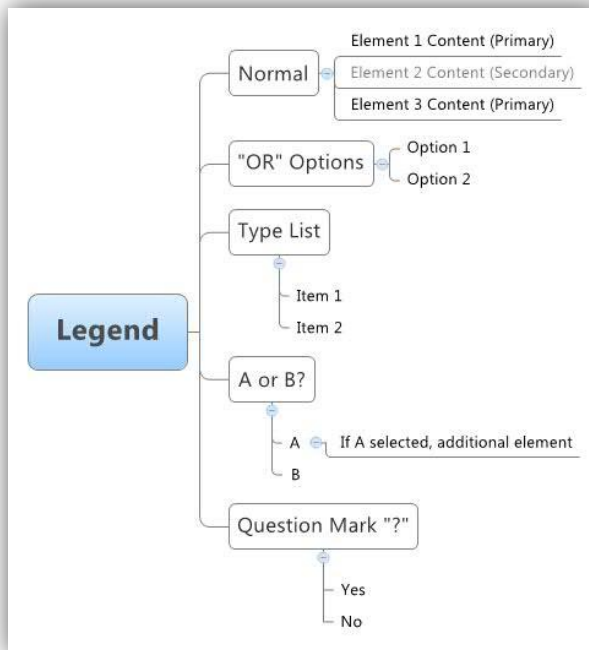
The IAN IEPD defines an Indicators and Notification message using a number of definitions, including the definition of *Interest* from the Maritime EIEMs and IAN IEPD unique definition of *Of Interest Object*

IEPD materials are accessible and downloadable at www.mda.gov.



LOGICAL DIAGRAMS

XML messages from the IEPDs can be confusing and difficult to understand for readers without a technical background. To better describe the components of an information exchange, graphical representations of the data elements associated with the exchange model have are provided. Below is a legend to use as a guide for the subsequent logical diagrams.



Normal - Data elements with sub-elements as branches that *contain* the data. Black sub-elements are "primary" and contained in both full and summary messages. Gray sub-elements are "secondary" and only contained in a full message.

"OR" Options - Data elements that identified the option to the user (e.g. search for vessel by position OR name). The option *contains* the data.

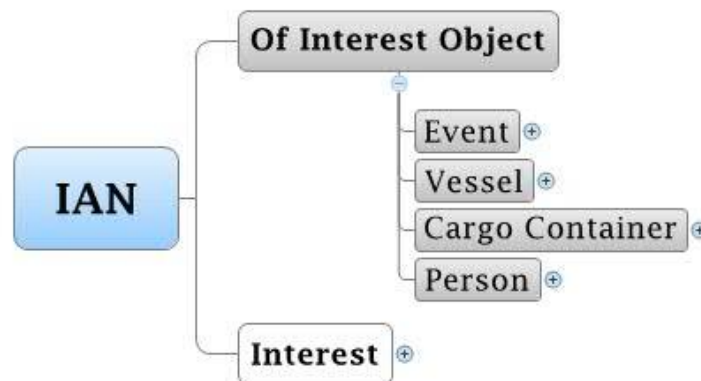
Type List - Data elements with a list of option choices. Unlike OR Options, the Type List choices *are* the data.

A or B? - Type Lists that asks user for additional information based upon the selection.

Question Mark (?) - Type Lists that are *only* yes or no answers.

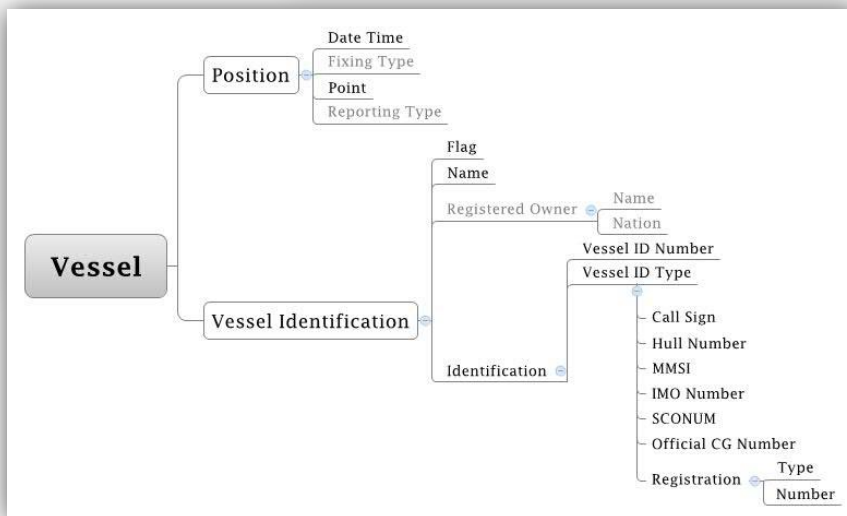
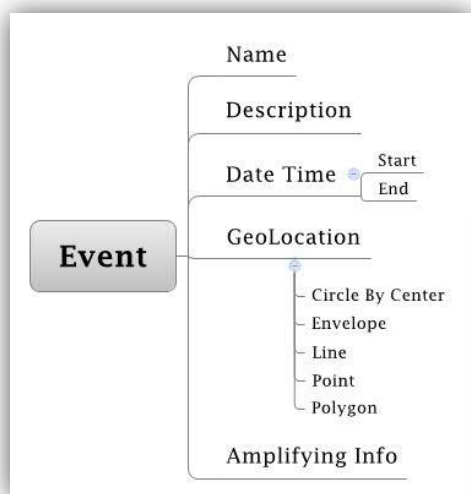
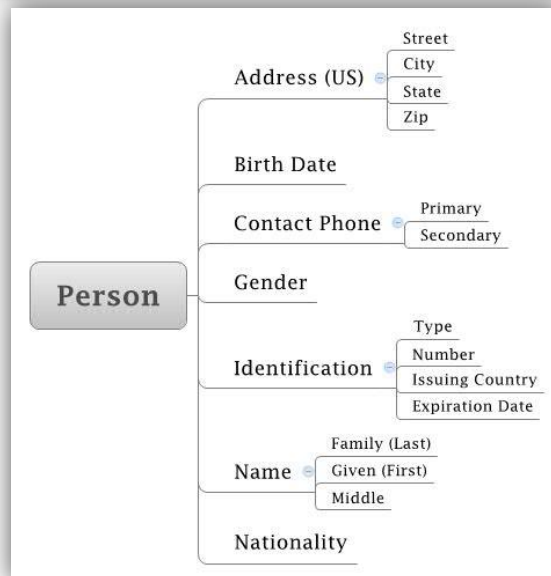
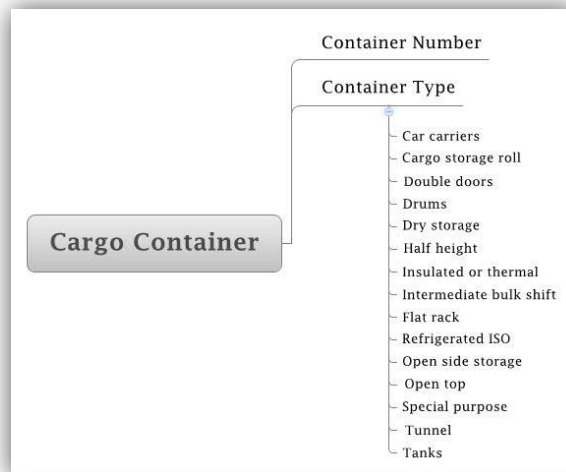
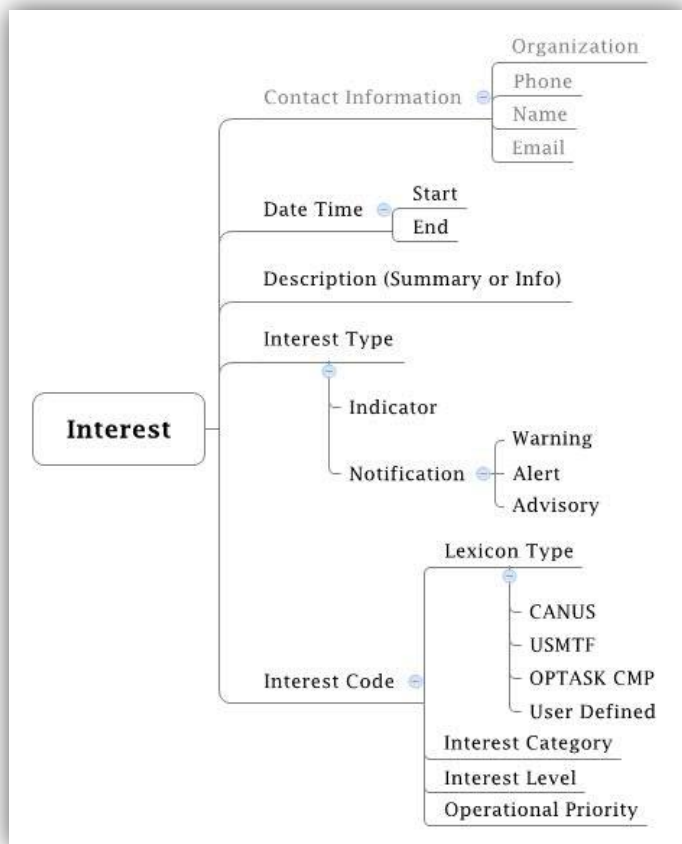
EXCHANGE MODEL – BLOCK LEVEL

The logical data blocks for this IEPD are shown here. The blue block represents the IEPD, white blocks represent applicable BIECs and the grey block is only used in the IAN IEPD.



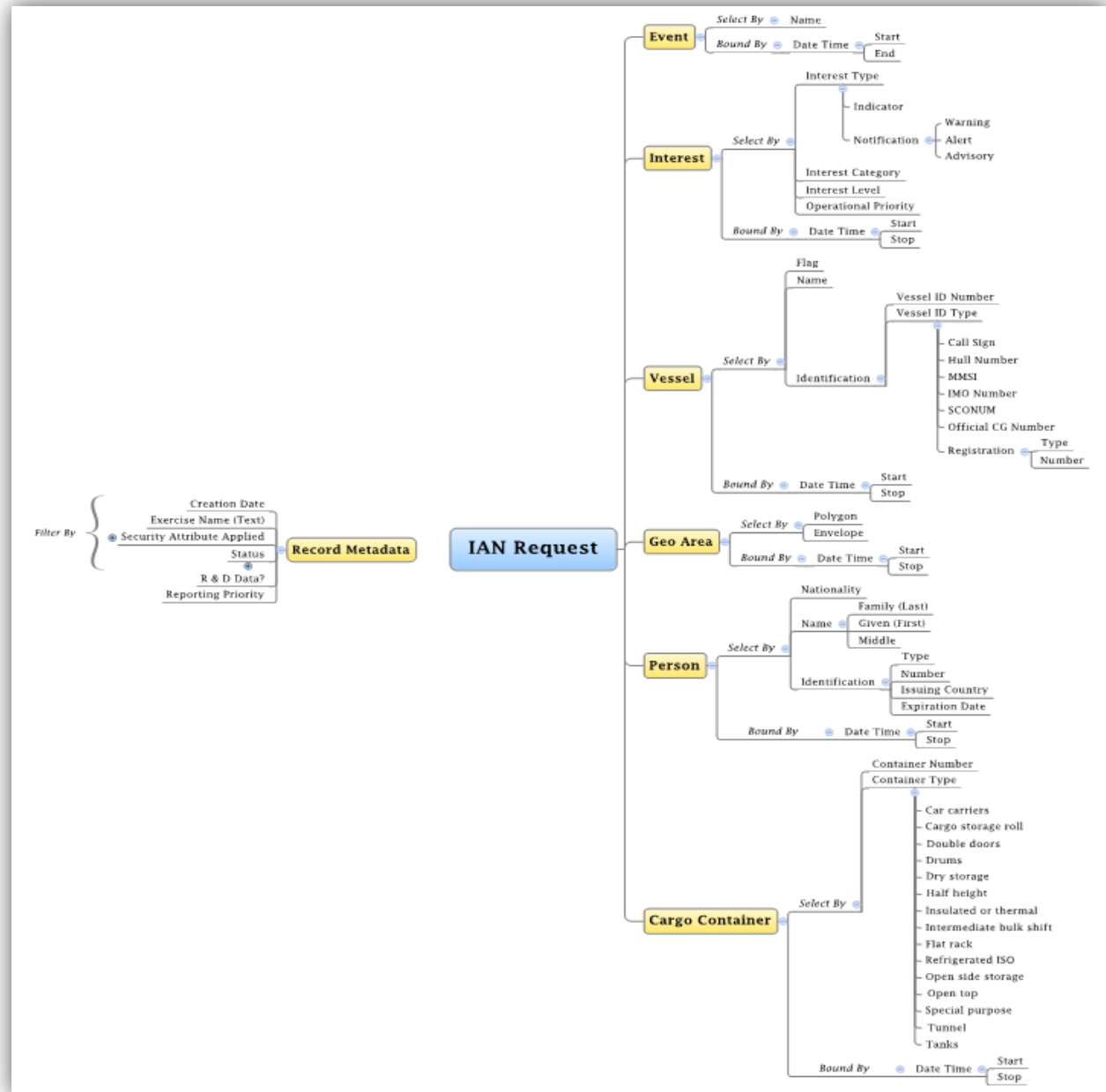
LOGICAL BLOCKS

The data elements in each logical block are shown below.



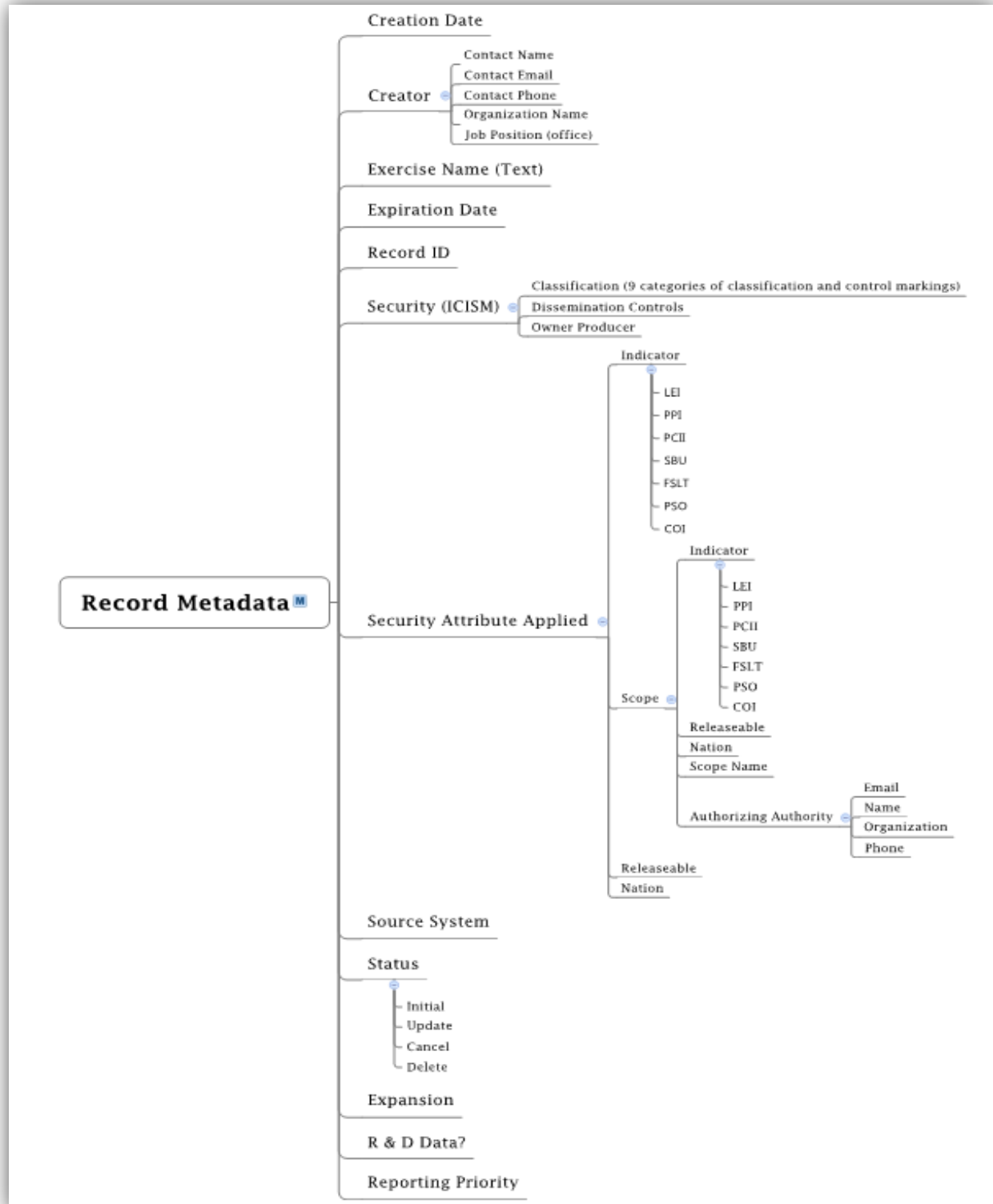
REQUEST/QUERY MODEL

Below is a graphical representation of the request/query model for position. The yellow blocks on the right side show the methods used to request IAN data. The yellow block on the left side shows the *Record Metadata* used to filter the resulting data.



RECORD METADATA

The record metadata shown below is used for managing the message throughout the exchange process.



DATA ELEMENT MAPPING

The following tables contain descriptions for the data elements for each data block.

INTEREST

Common Name	Description
Contact Information	Contact information about party making the report. Information includes: <i>Organization</i> - Organization of reporting party <i>Name</i> - Name of reporting party <i>Email</i> - Email of reporting party <i>Phone</i> - Phone number of reporting party
Date Time	Date and time an item of interest is in effect. Information includes: <i>Start</i> - Start date when the item of interest is in effect <i>End</i> - End date when the item of interest is no longer in effect
Description	A description or summary of the item of interest
Interest Type	The type of interest report. Types include: <ul style="list-style-type: none"> • <i>Indicator</i> – Any piece of discrete data, processed or otherwise, that is used to inform or as part of an analytical process • <i>Notification</i> – A maritime event that may require action. Options include: <ul style="list-style-type: none"> ○ <i>Warning</i> - Notification of a possible activity or event ○ <i>Alert</i> - Directed communication of actual or eminent execution of an event ○ <i>Advisory</i> - Informational notification
Interest Code	Information about the type, definition and severity of the report. Information includes: <i>Lexicon Type</i> – Origination definition of the Interest code. Types include: <ul style="list-style-type: none"> • <i>CANUS</i> - Threat category from the April 2007 CANADA/USA Bi-National Vessel of Interest (VOI) Lexicon • <i>USMTF</i> - Threat category defined by USMTF • <i>OPTASK CMP</i> - Threat category defined by Navy OPTASK CMP • <i>User Defined</i> - Threat category defined by a specific user supporting a specific event or partner needs <i>Interest Category</i> – A code representing the interest category <i>Interest Level</i> – The level of interest in the event <i>Operational Priority</i> – Defines the level of reporting and interaction with event

CARGO CONTAINER

Common Name	Description
Container Number	Container number of the reported cargo
Container Type	<p>Type of cargo container. Types include:</p> <ul style="list-style-type: none"> • Car Carriers • Cargo storage roll • Double doors • Drums • Dry Storage • Half height • Insulated or thermal • Intermediate bulk shirt • Flat rack • Refrigerated ISO • Open side storage • Open top • Special purpose • Tunnel • Tanks

EVENT

Common Name	Description
Name	The name of the event
Description	A description or summary of the item of interest
Date Time	<p>Date and time an item of interest is in effect Information includes:</p> <p><i>Start</i> - When the <i>event</i> starts</p> <p><i>End</i> - When the <i>event</i> ends</p>
GeoLocation	<p>Location of event and type of position reference. Types include:</p> <ul style="list-style-type: none"> • Circle by center • Envelope • Line • Point • Polygon
Amplifying Info	Amplifying Information

PERSON

Common Name	Description
Address	U.S. address of person being reported. Information includes: <i>Street</i> - Street address <i>City</i> - City <i>State</i> - State <i>Zip</i> - Zip code
Birth Date	Date of birth
Contact Phone	A telephone number of the person being reported. Information includes: <i>Primary</i> - Primary or main number <i>Secondary</i> - Secondary number
Gender	Gender of person
Identification	Primary identification of the person. Information includes: <i>Type</i> - Type of Identification <i>Number</i> - Identification number <i>Issuing Country</i> - Country identification was issued <i>Expiration date</i> - Identification expiration date
Name	Name of the person. Information includes: <i>Family</i> - Family (Last) name of the person <i>Given</i> - Given (First) name of the person <i>Middle</i> - Given (First) name of the person
Nationality	Nationality, represented as a three-letter code

VESSEL

Common Name	Description
Position	The geospatial position of the vessel being reported. Information includes: <i>Date Time</i> - The date and time that a position was recorded or measured <i>Fixing Type</i> - Fixing type of vessel <i>Point</i> - GML point representation for the position <i>Reporting Type</i> - Type of position report
Vessel Identification	Unique identification attributes of a vessel. Information includes: <i>Flag</i> - The national flag under which a vessel sails <i>Name</i> - The name of the vessel <i>Registered Owner</i> - The entity that owns a vessel. Information includes: <ul style="list-style-type: none"> <i>Name</i> - The name of the entity to whom the vessel is registered <i>Nation</i> - The nationality of the registered owner

Vessel, continued

Common Name	Description
Vessel Identification, continued	<p><i>Identification</i>- Specific identification information includes:</p> <ul style="list-style-type: none"> • <i>Vessel ID Number</i> - The number of a vessel • <i>Vessel ID Type</i> - Vessels can be identified by the following information: <ul style="list-style-type: none"> ○ <i>Call Sign</i> - The call sign for a vessel ○ <i>Hull Number</i> - The hull number of a vessel ○ <i>MMSI</i> - Maritime Mobile Service Identity (MMSI) of a vessel ○ <i>IMO</i> - Number The International Maritime Organization Number (IMO number) of a vessel ○ <i>SCONUM</i> - The Ship Control Number (SCONUM) of a vessel ○ <i>Official CG Number</i> - An official United States Coast Guard Number (USCG Official Number) of a vessel ○ <i>Other Registration</i> - Other registration information of the vessel <ul style="list-style-type: none"> ▪ <i>Type</i> - Information about another, not otherwise specified registration for a vessel ▪ <i>Number</i> - Registration number of a vessel

METADATA

Common Name	Description
Creation Date	A date a document was created
Creator	<p>Entity primarily responsible for creating the content of the resource. Information includes:</p> <p><i>Contact Name</i> - The name of a person who is the contact for the document creator</p> <p><i>Contact Email</i> - An electronic mailing address by which the document creator may be contacted</p> <p><i>Contact Phone</i> - A telephone number by which the document creator may be contacted</p> <p><i>Organization Name</i> - The name of an organization who is the document creator</p> <p><i>Job Position (Office)</i> - Brief description of a position</p>
Exercise Name	Exercise name
Expiration Date	A date a transmitted document expires
Record ID	A unique ID identifying a record

Metadata, continued

Common Name	Description
ICISM Marking (Security)	<p>Security classification of data. Information includes:</p> <p><i>Classification</i> - A single indicator of the highest level of classification applicable to an information resource or portion within the domain of classified national security information</p> <p><i>Dissemination Controls</i> - One or more indicators identifying the expansion or limitation on the distribution of information</p> <p><i>Owner Producer</i> - One or more indicators identifying the national government or international organization that have purview over the classification marking of an information resource or portion therein</p>
Security Attributes Applied	<p>Characteristics of a persona that defines a user in a particular role. Security Attributes include:</p> <p><i>Indicator</i> - Indicates the security that must be applied to the record</p> <ul style="list-style-type: none"> • Law Enforcement (LEI) • Privacy Protected (PPI) • Sensitive But Unclassified (SBU) • Protected Critical Infrastructure Information (PCII) • Federal/State/Local/Tribal/Territorial (FSLT) • Private Sector Only (PSO) • Community of Interest (COI) <p><i>Scope</i> - Indicates the security that must be applied to this record within the context of the named scope</p> <ul style="list-style-type: none"> • Indicator - LEI, PPI, SBU, PCII, FSLT, PSO, COI • Releasable - Whether the data is releasable in the context of the names scope • Nation - The nations which the data can be released in the context of the named scope • Scope Name - Name of the scope in which the security and releasability is modified • Authorizing Authority - Entity authorizing the use of the set of attached scope attributes on this metadata element. Includes the following information: <ul style="list-style-type: none"> ○ <i>Email</i> - The email of the authorizing authority ○ <i>Name</i> - The name of the authorizing authority ○ <i>Organization</i> - The organization of the authorizing authority ○ <i>Phone</i> - The phone number of the authorizing authority <p><i>Releasable</i> - Whether the data is releasable</p> <p><i>Nation</i> - Nations allowed for release</p>

Metadata, continued

Common Name	Description
Status	A status of a record that can be any of the following: <i>Initial</i> - New record <i>Update</i> - Change or update to an existing record <i>Cancel</i> - Cancellation of existing record <i>Delete</i> - Deletion of an existing record
Expansion	Additional information
Research and Development Data	True if the information in the record is for research and development , false otherwise
Reporting Priority	Numeric value representing how often this record is updated

